Transportation in North Carolina

Jim Trogdon, Chief Operating Officer

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

- Employs more than 12,000 people in a variety of positions, which range from transportation workers and engineers to archaeologists and ferry captains
  - Oversee all modes of transportation in North Carolina, including
    - ◊ Highways
    - ◊ Rail
    - ◊ Aviation
    - ◊ Ferries
    - ◊ Public Transit
    - ◊ Bicycle and Pedestrian Transportation
    - ◊ Division of Motor Vehicles
- Operations are led by the Secretary of Transportation, a member of the Governor's cabinet 222
- Nineteen men and women from across the state make up the N.C. Board of Transportation
  - Appointed by the governor to represent a specific Transportation Division or at-large area of interest
  - Work with NCDOT staff members to make decisions about transportation priorities and fund allocation

North Carolina Board of Transportation

- At least three members must be registered voters of a political party other than the political party of the Governor
- No more than two members may reside in the same highway division
- The Governor must submit proposed appointees to the Joint Legislative Transportation Oversight Committee for a 30 day review/comment period

North Carolina Board of Transportation

- 19 members all appointed by the Governor
- Each division has one representative
- Five at large members
  - State Ports and Aviation Issues
  - Rural Transportation Issues
  - Environmental Issues
  - Government-Related Finance & Accounting Issues
  - Mass Transit

HIGHWAY DESIGN

- Develops and provides designs that provide a safe facility for the traveling public while minimizing impacts to the human and natural environment
- Includes:
  - Roadways
  - Bridges
  - Culverts
  - Retaining Walls
  - Drainage Systems
  - Lighting
  - Route Surveys
  - Utility Relocation & Coordination

CHALLENGES FACED IN DESIGN

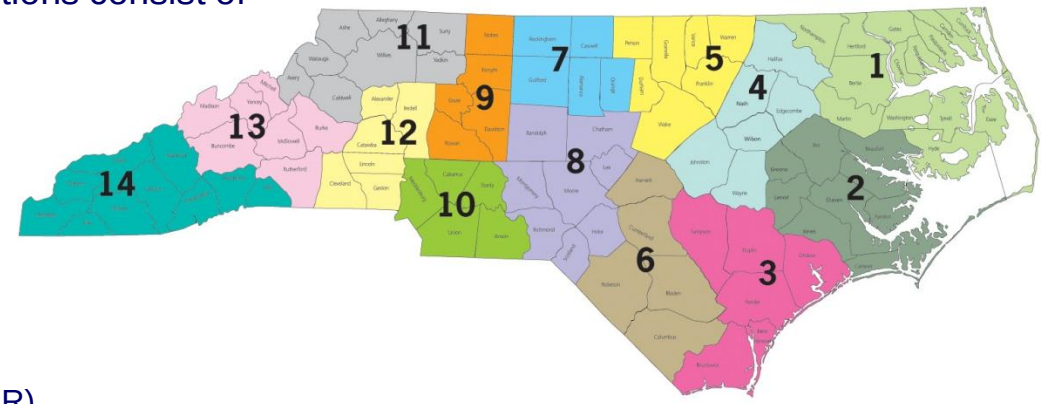
- **Minimize impacts to homes/businesses**
- **Minimize disruption to communities**
- **Minimize impacts to streams and wetlands**
- **Address public concerns & incorporate input**
- **Provide design flexibility while ensuring appropriate standards and policies are incorporated**
- **Provide a cost effective design that meets schedule and budget**

CONSTRUCTION

- Provides statewide support to the Division staff in the administration of construction contracts as well as other various responsibilities
- Responsible for the oversight of over 1300 active highway related construction projects
- Construction projects are diverse and dynamic and include:
  - Bridges and roads
  - Rest Areas
  - Bus Terminals & Weigh Stations
  - Electronic systems (i.e., fiber communication, signal systems)
  - Hardware/software managed facilities
- Requires innovation, flexibility, change and constant growth

OPERATIONS

- Under the direction of Chief Engineer functions consist of
  - Construction
  - Maintenance
  - Operations
- NCDOT is responsible for a 80,000 mile transportation network comprised of
  - interstate facilities
  - primary highways (US and NC routes)
  - secondary (farm to market or local) roads (SR)
- There are more than 17,000 inventoried bridges and other structures within the highway system
- Operations is comprised of 14 Highway Divisions
  - Each division has three primary functions
    - ◊ Operations
    - ◊ Maintenance
    - ◊ Construction



MAINTENANCE

- Maintenance activities include
  - Pavement repair
  - Resurfacing
  - Drainage installation and improvements
  - Mowing
  - Snow and ice removal
  - vegetation management
  - Litter and debris removal
  - Sign installation and replacement
  - Pavement markings
  - Signal installation and repair
  - Bridge repair and replacement

ROADSIDE ENVIRONMENTAL

Provides roadside elements for a statewide highway system that are safe, environmentally sound, attractive and responsive to the public's needs

- Soil and Water Engineering
- Vegetation Management
- Landscape Design & Development
- Environmental Operations
- Rest Areas
- Field Operations
- Office of Beautification Programs
- Scenic Byways

TRAFFIC MANAGEMENT

Where the rubber meets the road for integrating advanced technology in everyday transportation

- Integrating new technology every year
- Communications via
  - Microwave
  - radio wave
  - Satellite
  - cell phone
  - others
- Over 9000 signals
- Hundreds of cameras
- Hundreds of miles of fiber optics

- Second largest in U.S.
- Operates 21 ferry vessels at 7 routes along coast of state
- Serves over 1 million vehicles and 2.5 million passengers annually
- Operate 365 days per year
- Plays vital role in evacuation of Outer Banks in a hurricane of nor’easter
- Only way to transport heavy machinery, goods, supplies, and people in aftermath of storm

NORTH CAROLINA FERRY DIVISION

AVIATION

- Responsible for all aviation functions regarding
  - State system planning
  - Airport and aviation system development
  - Operations and maintenance of aircraft
- Commercial and general aviation account for about $26 billion in revenue each year and are responsible for creating more than 108,000 jobs in North Carolina.
- Provides a range of services:
  - Aerial Photography & Spatial Information Products for Transportation Projects
  - Passenger Service
  - Aviation Safety
  - Statewide Emergency Response

RAIL

- Railroads in North Carolina operate more than 3,300 miles of track
- There are 4025 at-grade public crossings statewide
  - 66% percent have signal warning devices (gates and/or flashing lights)
- Two Class I and 21 shortline railroads operate in North Carolina, transporting more than 1.6 million carloads of freight each year

PUBLIC TRANSPORTATION

- Includes urban, rural, and regional transit, light rail, etc.
- $358 million industry
- Approximately 5,000 people employed by transit systems
- 77.2 million individual trips in 2012
- 2,398 vehicles
- 88.9 million miles of service
- 15% ridership increase since 2008

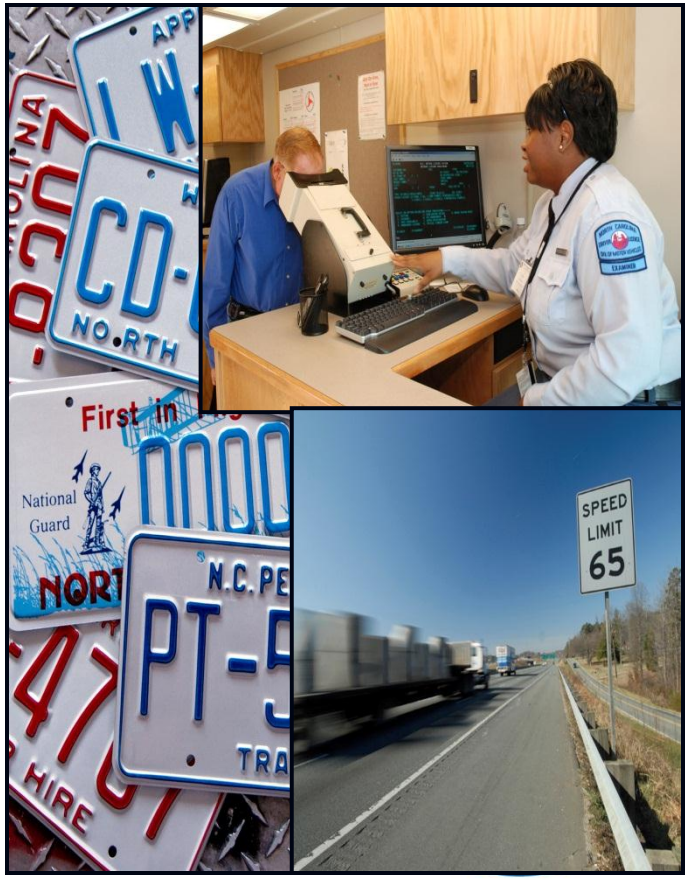
BICYCLE & PEDESTRIAN TRANSPORTATION

Touches all aspects of bicycling and walking:

- designing facilities
- creating safety programs
- fostering multi-modal planning
- integrating bicycling and walking into ongoing activities of the DOT
- mapping cross-state bicycle routes
- training teachers and sponsoring workshops and conferences

DEPARTMENT OF MOTOR VEHICLES (DMV)

- Registers 34,461 vehicles per day - 8.7 million vehicles registered statewide
- Conducts more than 9,000 driver license transactions daily – 6.9 million licensed drivers in North Carolina
- Oversees administrative hearings, DWI revocations and insurance lapses
- Tracks and audits over 5.4 million vehicle emissions inspections and over 3 million safety inspections statewide
- DMV's License and Theft Bureau performed 3000 fraud investigations during 2012 and made nearly 600 individual arrests



Highway Project Delivery

- Major Work Phases
- Timeframes

Framework for Meeting Transportation Needs in North Carolina

North Carolina Comprehensive Plan — NC

NC Transportation Plan (30 yr) — NCDOT

Program & Resource Plan (10 yr)

Work Program (5 yr)

Project Development Process

- Collaborative Process
- Input obtained from various project stakeholders
- Progression of project depends upon approvals and agreements by others; therefore NCDOT seeks concurrence from partners at major project milestones

Transportation Program Life Cycle

Long-Range Planning
Determine Needs

Program Development
Fund Projects

Project Planning
Minimize Impacts

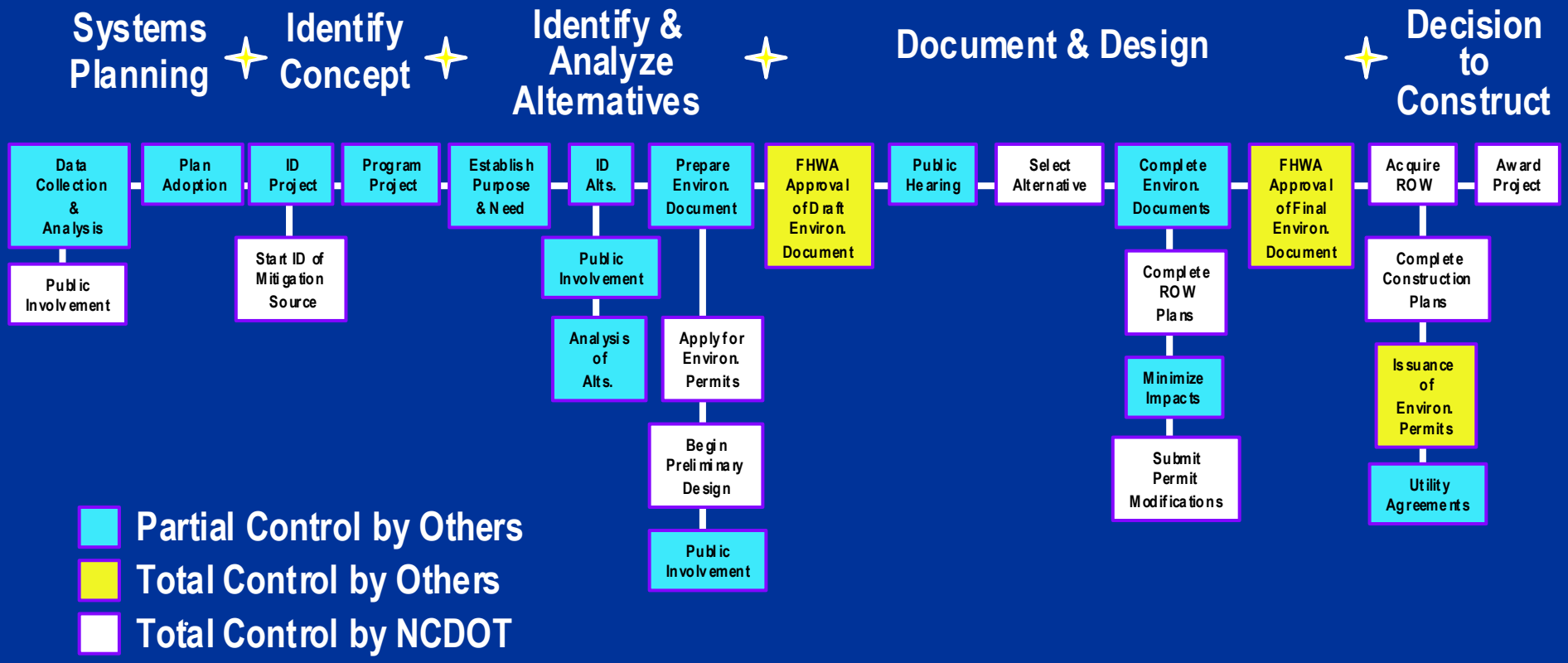
Project Design
Design and Acquire ROW

Project Development

Construction
Build Facility

Maintenance & Operations
Maintain Facility

Pre-Construction Transportation Decision-Making Process



Goal: To ensure a transportation improvement meets need in the least environmentally damaging practical way

Project Planning Major Steps

- Identify Transportation Purpose and Need
- Project Study Area is Determined
- Environmental & Community Features Identified
- Develop alternatives to minimize impacts (generally 1000 feet corridor widths)

Project Planning Major Steps

- Develop preliminary highway designs within corridors
- Evaluate impacts to natural and human environment
- Coordinate with project stakeholders (agencies & public)
- Select preferred alternative
- Complete all environmental planning documents to comply with National Environmental Policy Act

NEPA Documentation

- Completion and approval of NEPA documents generally conclude the project planning process
- Environmental Impact Statements (usually required for new location projects)
- Environmental Assessment and Finding of No Significant Impacts (typically done for widening projects)
- Categorical Exclusions (typically done for bridge replacement projects)

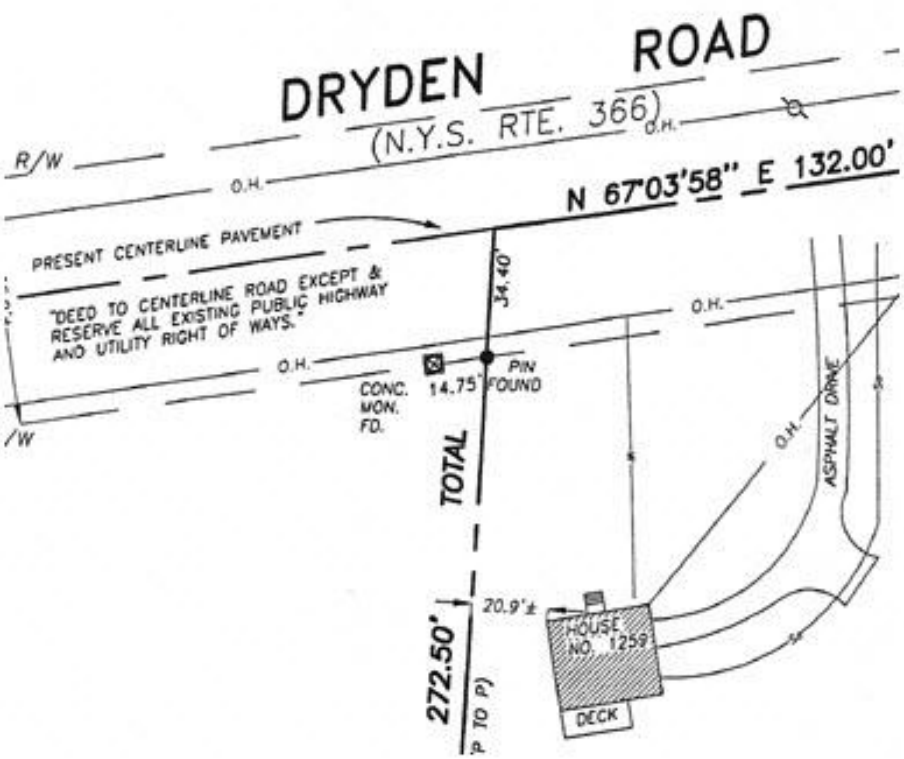
Project Design Major Steps

- Location and Surveys provides survey information and plan sheets are developed for chosen alternative
- Highway design (horizontal and vertical) is finalized
- Proposed drainage design is completed
- Construction limits are determined
- Right of way limits are set to contain construction limits, drainage features and to ensure appropriate width for future maintenance needs

Highway Design

- Roadways
- Bridges
- Culverts
- Retaining Walls
- Drainage Systems
- Lighting
- Route Surveys
- Utility Relocation & Coordination

Route Surveys



Roadway Design

Structure Design

Culvert Design

Retaining Walls

Acquire Right of Way

- NEPA documents and designs have to be completed and approved before right of way acquisition authorization is granted
- Negotiations, appraisals, and relocations are major activities within acquisition process
- Right of way acquisitions are completed before construction begins (or rights to enter property obtained)
- Utility Coordination is completed during right of way acquisition to adjust those utilities that are in conflict with roadway construction

Obtain Environmental Permits

- Permit coordination has been merged with the project development process to better ensure avoidance/minimization of impacts and that project can be permitted at the end of the process.
- Offsite Mitigation for unavoidable impacts is being supplied through the Ecosystem Enhancement Program
- Permit application is made after final design is completed for the roadway and hydraulic design

NCDOT Contract Award

All activities are completed before project can move to construction contract

Project contract information is prepared

Advertisements for project letting are conveyed

Contractors submit bids

Low bids are determined

Award of project is determined based on bids

So how long does it take to complete preconstruction activities?

- Heavily dependent upon project complexity
- Range of impacts
- Reception of project to public
- Design complexity
- Utility Conflicts
- Number of parcels and relocations involved

Typical Project Durations (from beginning of planning to letting)

Major new location projects (eight to ten years)

Widening projects (five to eight years)

Bridge projects (one to four years)

Construction Phases of Work

Surveying
Clearing
Erosion Control
Bottom Drainage
Rough Grading
Bridge Foundations
Top Drainage
Fine Grading
Base and Pave
Bridge Beams and Deck

Guardrail
Markings, Signs, Signals
Base and Pave
Bridge Beams and Deck
Guardrail
Markings, Signs, Signals

Survey

Clearing

Erosion Control

Bottom Drain Pipe and Culverts

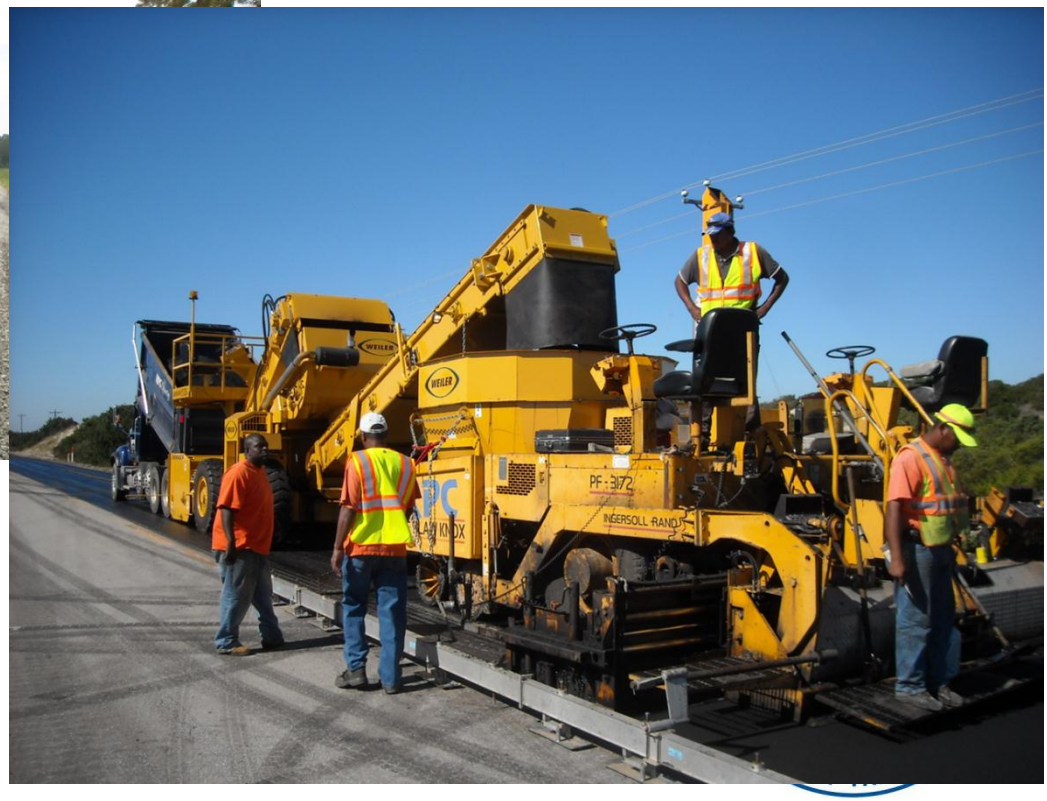
Rough Grading

Bridge Foundations

Top Drainage

Fine Grading

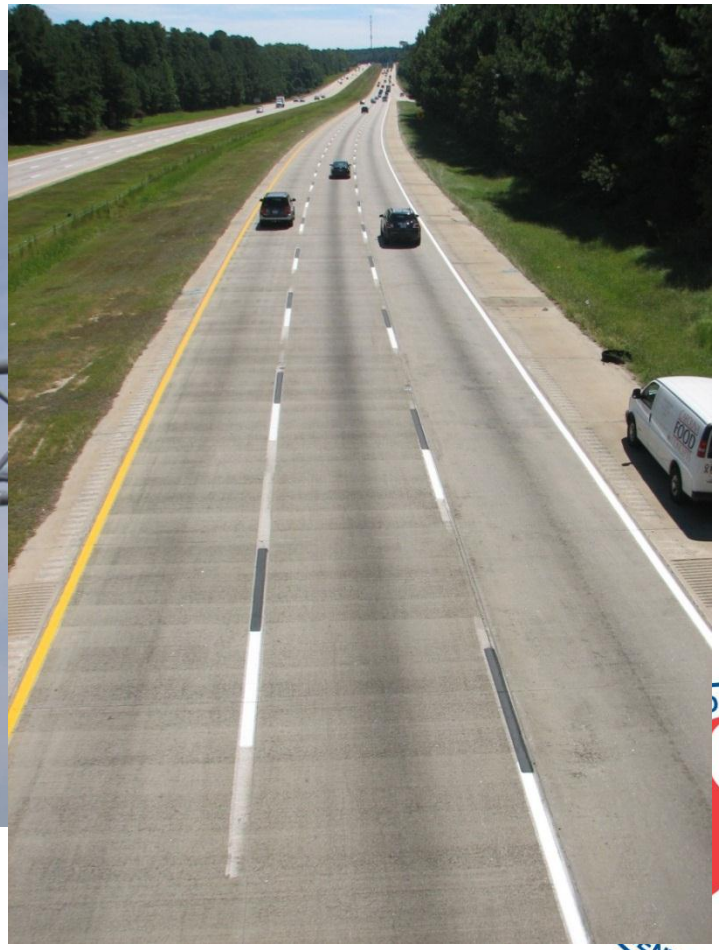
Base and Pave



Bridge Beams and Deck

Guardrail

Pavement Markings, Signs, Signals



Typical Project Construction Durations

New Location – 3 ½ - 4 Years

Major Pavement Rehabilitation - 2 ½ - 3 Years

Urban Widening - 2 - 3 Years

Bridge Replacement (low impact) - 6–18 months

Project Delivery Process

- Lot of work, coordination, collaboration, and communication involved in process
- Process is complex
- It can take many years from entry in TIP until the project construction is completed
- Recognition of need to closely coordinate project delivery and funds

Project Streamlining Measures

- Integration of long-range planning activities into the NEPA process
- Performance Measures have been established for Merger Process
- Interagency Leadership Team has set goal to improve Merger Process
- Advanced use of GIS in process
- More thorough and interactive project scoping to identify issues/concerns early in the process
- Development of Low-Impact Bridge Process

Questions?